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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,188	02/20/2007	Jan Herman Laarhuis	242597	1493

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EXAMINER
KAO, JUTAI

ART UNIT	PAPER NUMBER
2473	

NOTIFICATION DATE	DELIVERY MODE
09/16/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Chgpatent@leydig.com

Office Action Summary	Application No.	Applicant(s)	
	10/560,188	LAARHUIS ET AL.	
	Examiner	Art Unit	
	JUTAI KAO	2473	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 27-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2, 27 and 29-30* is/are allowed.

6)☒ Claim(s) *1,3-15 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/25/2010 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-15 and 27-30 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 5, 7, 9, 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bremer (US 2004/0042510) in view of Roberts (US 6,959,019).

Bremer discloses a system using indirect DSL over loaded and unloaded loops including the following features.

Regarding claim 1, a telecommunication network (see network in Fig. 6), comprising: a first subnetwork (see subnetwork including the REACHDSL 6111, 6211, 6311 and the conversion Mux/I-Mux conversion equipment 6550 in Fig. 6); a plurality of nodes in the first subnetwork (see REACHDSL MODEM 6111, 6211 and 6311 in Fig. 6); a plurality of physically separate intersubnetwork connections (see load coils 6651-6855 for connecting the conversion equipment 6550 and 6560 in Fig. 6) for connection of the first subnetwork to a second subnetwork (see central office equipment 6560, PSTN 6950 and data network 6960 in Fig. 6), each one of the plurality of physically separate intersubnetwork connections having a first subnetwork side and the second subnetwork side (see load coils 6651-6851 being connected to the first subnetwork 6550 on one side and the second subnetwork 6560 on the other side).

Regarding claim 9, wherein the number of intersubnetwork connection is smaller than the number of nodes connectable with the connecting system in the fist

subnetwork (see Fig. 4, wherein there are two nodes per connection to the Mux/Dmux conversion device and see paragraph [0057], which explains that the number of connections between the customer nodes and the number of intersubnetwork connection to the central office nodes do not have to match, and the Mux/Dmux may have various ratios as subscribers contend for bandwidth access, which clearly suggest that there may be more customer devices than the internetwork connection).

Bremer does not disclose the following features: regarding claim 1, a plurality of inverse multiplexers, wherein each one of the plurality of inverse multiplexer has an input, each one of the plurality of inverse multiplexers being arranged for receiving an original data signal transmitted from the respective node for transmission to the second subnetwork and inverse multiplexing the original data signal to a plurality of inverse multiplex data signals for transmitting the original data signal to the second subnetwork via the plurality of physically separate intersubnetwork connections in an inverse-multiplexed manner, each one of the plurality of system multiplexers being connected between outputs of a plurality of the inverse multiplexers and at least one of the plurality of physically separate intersubnetwork connections, wherein each one of the plurality of system multiplexers is connected with a different one of the plurality of physically separate intersubnetwork connections, and the plurality of system multiplexers are arranged for transmitting the inverse multiplex data signals to the second subnetwork, wherein the plurality of inverse multiplex data signals from a same one of the plurality of inverse multiplexers are each transmitted over a different one of the plurality of physically separate intersubnetwork connections; wherein each one of the plurality of

system multiplexers is arranged to receive and transmit inverse multiplex data signals from each of the plurality of inverse multiplexers; regarding claim 5, routing units which each comprises a combination of one of the inverse multiplexers and one of the system multiplexers, wherein each routing unit, for interchanging the inverse multiplex data signals with the node, is, without intervention of one of the other routing units, connected with a respective node, and via at least one of the routing units with other nodes than the respective node; regarding claim 7, wherein at least one of the at least two intersubnetwork connections is a broadband connection; regarding claim 14, wherein the second subnetwork comprises a shared inverse demultiplexer and/or inverse multiplexer for inverse demultiplexing and/or inverse multiplexing original data from and/or for the combined nodes; regarding claim 15, wherein the second subnetwork comprises a plurality of inverse demultiplexers and/or inverse multiplexers, each for inverse demultiplexing and/or inverse multiplexing of original data from and/or for a respective node from the first subnetwork.

Roberts discloses a method of aharmonic interleaving of forward error corrected signals including the following features.

Regarding claim 1, a plurality of inverse multiplexers (see inverse multiplexers 22a-22d in Fig. 3), wherein each one of the plurality of inverse multiplexer has an input (see inputs 10a-10d), each one of the plurality of inverse multiplexers being arranged for receiving an original data signal transmitted from the respective node for transmission to the second subnetwork and inverse multiplexing the original data signal to a plurality of inverse multiplex data signals for transmitting the original data signal to

the second subnetwork via the plurality of physically separate intersubnetwork connections in an inverse-multiplexed manner (see original signal SS(1) through SS(4) being input to the inverse multiplexers 22a-22d, and each original signal is inverse multiplexed and transmitted to the second network via the intersubnetwork connections 34a-34d); a plurality of system multiplexers (see system multiplexers 30a-30d), each one of the plurality of system multiplexers being connected between outputs of a plurality of the inverse multiplexers and at least one of the plurality of physically separate intersubnetwork connections (see 30a-30d being placed between outputs of inverse mux 22a-22d and intersubnetwork connections 34a-34d), wherein each one of the plurality of system multiplexers is connected with a different one of the plurality of physically separate intersubnetwork connections (see each mux 30a-30d has its own intersubnetwork 34a-34d, respectively), and the plurality of system multiplexers are arranged for transmitting the inverse multiplex data signals to the second subnetwork (see Fig. 3 and 4, wherein the intersubnetwork connections are to be transmitted to the second subnetwork shown in Fig. 4), wherein the plurality of inverse multiplex data signals from a same one of the plurality of inverse multiplexers are each transmitted over a different one of the plurality of physically separate intersubnetwork connections (see Fig. 3, wherein each output of inverse mux 22a-22d are transmitted to a different intersubnetwork connection 34a-34d via different mux 30a-30d); wherein each one of the plurality of system multiplexers is arranged to receive and transmit inverse multiplex data signals from each of the plurality of inverse multiplexers (see Fig. 3, wherein mux

30a-30d are arranged to receive and transmit inverse multiplex data signals from inverse mux 22a-22d).

Regarding claim 5, routing units which each comprises a combination of one of the inverse multiplexers and one of the system multiplexers (see Fig. 2, which shows a routing unit 8 including inverse multiplexers 22a-m and system multiplexer 26), wherein each routing unit, for interchanging the inverse multiplex data signals with the node (see Fig. 2, which includes nodes connected to routing unit 8 via lines 10a-m; the nodes are not shown in the figure, but as shown in Bremer, these nodes are represented REACHDSL MODEM 6111, 6211, 6311), is, without intervention of one of the other routing units (see Fig. 1, wherein the nodes are connected to the routing unit 8 without intervention of any other routing unit), connected with a respective node (see Fig. 1, wherein routing unit 8 is connected with nodes 10a-m without intervention of other routing units), and via at least one of the routing units with other nodes than the respective node (see Fig. 1, wherein routing unit 8 is connected to nodes 16a-m via another routing unit 14).

Regarding claim 7, wherein at least one of the at least two intersubnetwork connections is a broadband connection (see “2.5 Gb/s” recited in column2, lines 1-4, which is considered broadband).

Regarding claim 14, wherein the second subnetwork (see subnetwork shown in Fig. 4) comprises an inverse demultiplexer and/or inverse multiplexer, shared by a set of nodes, for inverse demultiplexing and/or inverse multiplexing original data from and/or for the combined nodes (see the mux/demux shown in Fig. 4).

Regarding claim 15, wherein the second subnetwork (see subnetwork shown in Fig. 4) comprises a plurality of inverse demultiplexers and/or inverse multiplexers, each for inverse demultiplexing and/or inverse multiplexing of original data from and/or for a respective node from the first subnetwork (see the mux/demux shown in Fig. 4).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the MUX/Inverse MUX equipment of Bremer (such as equipment 6550 in Fig. 6 of Bremer) using the Mux-Dmux structure as taught by Roberts (such as mux-dmux 22a-22d and 30a-30d) in order to distribute the effects of noise among the sub-streams (see Roberts column 2, line 1-12).

6. Claims 3-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bremer and Roberts as applied to claim 1 above, and further in view of Ferguson (US 2002/0041604).

Bremer and Roberts disclose the claimed limitations as shown above.

Bremer and Roberts do not disclose the following features: regarding claim 3, wherein the intersubnetwork connections comprise different local loop telephone connections; regarding claim 4, wherein at least two nodes on the first subnetwork side are located in different buildings; regarding claim 8, wherein at least one of the broadband connection has a data throughput speed between 0.5 and 2.0 Mbps in the direction from the second subnetwork to the first subnetwork.

Ferguson discloses an SDH multiplexer with AIM facilities including the following features.

Regarding claim 3, wherein the intersubnetwork connections comprise different local loop telephone connections (see Fig. 1, which shows the intersubnetwork connections, or the AIM shown in Fig. 5, which are used by "linking…sub-networks…by one telephone company to another" recited in paragraph [0004]).

Regarding claim 4, wherein at least two nodes on the first subnetwork side are located in different buildings (as shown in Fig. 3, the sub-networks is a telephone sub-network, which is known to have user nodes to be located in different buildings/locations in a neighborhood).

Regarding claim 8, wherein at least one of the broadband connection has a data throughput speed between 0.5 and 2.0 Mbps in the direction from the second subnetwork to the first subnetwork (see "1.5 or 2Mbit/s" recited in paragraph [0003]).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Bremer and Roberts, using features as taught by Ferguson, in order to allow telephone providers to connect its sub-network to one another.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bremer and Roberts as applied to claim 5 above, and further in view of Okumura (US 2006/0007950).

Bremer and Roberts disclose the claimed limitations as shown above.

Roberts also discloses the following features.

Regarding claim 6, wherein at least one of the routing units is connected via a regular connection with its respective node (see Fig. 1, wherein the routing unit 8 is connected to its respective nodes via regular connections 10a-m).

Bremer and Roberts do not disclose the following features: regarding claim 6, wherein the routing unit is connected via a wireless transmission connection for communication with at least one of the other routing units for interchanging the inverse multiplex data signals with the other nodes than the respective node.

Okumura discloses a data multiplexing method including the following features.

Regarding claim 6, wherein the routing unit is connected via a wireless transmission connection for communication with at least one of the other routing units for interchanging the inverse multiplex data signals with the other nodes than the respective node (see Fig. 15, wherein the routing unit 15 is connected to another routing unit 23 via wireless transmission connection connected via antenna 17, 18, 21 and/or 29).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Bremer and Roberts, using features as taught by Okumura, in order to the communication of wireless subnetworks.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bremer and Roberts as applied to claim 1 above, and further in view of Kubo (US 7,440,475).

Bremer and Roberts disclose the claimed limitations as shown above.

Bremer and Roberts do not disclose the following features: regarding claim 10, wherein the number of intersubnetwork connections is equal to the number of end nodes in the first subnetwork connectable with the second subnetwork via the intersubnetwork connection.

Kubo discloses an error-correction multiplexing apparatus including the following features.

Regarding claim 10, wherein the number of intersubnetwork connections is equal to the number of end nodes in the first subnetwork connectable with the second subnetwork via the intersubnetwork connection (see Fig. 1 and Fig. 2, wherein one STM -64 connection is connected to the multiplexer/demultiplexer unit and only one intersubnetwork connection, shown as the FEC FRAME in Fig. 2 is output from the FEC multiplexer device).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Bremer and Roberts, using features as taught by Kubo, in order to correct transmission errors.

9. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bremer and Roberts as applied to claim 1 above, and further in view of Mueller (US 7,068,687).

Bremer and Roberts disclose the claimed inventions as shown above.

Bremer and Roberts do not disclose the following features: regarding claim

Mueller discloses a method for transmitting concatenated data signals including the following features. regarding claim 11, wherein at least one of the inverse multiplexers is arranged for distributing the inverse multiplex data signals over the intersubnetwork connections connected with the inverse multiplexer according to a predetermined distribution criterion; regarding claim 12, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the subnetwork connections in proportion with the bandwidth of the respective intersubnetwork connection; regarding claim 13, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the intersubnetwork connections in proportion with the number of intersubnetwork connections.

Regarding claim 11, wherein at least one of the inverse multiplexers is arranged for distributing the inverse multiplex data signals over the intersubnetwork connections connected with the inverse multiplexer according to a predetermined distribution criterion (see Fig. 1, wherein a 40Gbit/s signal DSA is distributed into four 10 Gbit/s IMA signals).

Regarding claim 12, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the subnetwork connections in proportion with the bandwidth of the respective intersubnetwork connection (see Fig. 1, wherein a 40Gbit/s signal DSA is distributed into four 10 Gbit/s IMA signals).

Regarding claim 13, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the intersubnetwork

connections in proportion with the number of intersubnetwork connections (see Fig. 1, wherein a 40Gbit/s signal DSA is distributed into four 10 Gbit/s IMA signals).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Bremer and Roberts using features, as taught by Mueller, in order to allow transmission of concatenated data signals generated from a plurality of nodes (see abstract of Mueller).

10. Claims 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bremer and Roberts as applied to claim 7 above, and further in view of O'Dell (US 6,891,825).

Bremer and Roberts disclose the claimed limitations as shown above.

Bremer and Roberts do not disclose the following features: regarding claim 28, wherein at least one of the at least two intersubnetwork connections is an ADSL connection.

O'Dell discloses a system for providing multi-user access to a packet switched network including the following features.

Regarding claim 28, wherein at least one of the at least two intersubnetwork connections is an ADSL connection (see Fig. 6A, wherein the intersubnetwork connections, between the Internet 623 and the LAN shown on the left side of the figure, may be connected via the DSLAM 614 and the data network 615).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Bremer and Roberts, using features as taught by

O'Dell, in order to provide multi-user access to a packet switched network (see abstract of O'Dell).

Allowable Subject Matter

11. Claims 2, 27 and 29-30 are allowed.

12. The following is an examiner's statement of reasons for allowance: claims 2, 27 and 29-30 are allowable over prior art because no reasonable combinations of prior art references, without hindsight, teaches the entirety of the claimed features.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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